PROCTOCLYSIS IN THE TREATMENT OF PERITONITIS

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The employment of proctoclysis in the treatment of the various forms of peritonitis, postoperative or otherwise, and general toxemic conditions, is a very simple procedure, but unless given with appreciation of the principles involved the solution will not be retained by the patient. The continuous method is by far the most scientific and successful. The retention of fluid in the colon depends entirely on its method of administration. Moderate distention is the normal condition of the large intestine. Its mucosa absorbs water with great rapidity. If it is hyperdistended it causes spasm and expulsion of material. The results obtained by this treatment have been so surprising that it was at first feared they were accidental, but they are now so uniform as to amount almost to a mathematical certainty when the details are carried out, which are based on our knowledge of the physiologic and pathologic conditions of septic absorption, local and constitutional immunity, and the elimination of toxins.

The apparatus in its simplest form consists of a fountain syringe or can with a large rubber tube attached, terminating in a vaginal hard rubber or glass tip flexed at an obtuse angle two inches from its tip, having numerous openings in its bulbed end, or in the apparatus made by W. H. Grady & Co., shown in Figure 9. The tip should be inserted into the rectum so that the angle fits closely to the sphincter, and the tube may then be bound firmly to the thigh with adhesive strips so that it may not be expelled, as shown in the illustra-

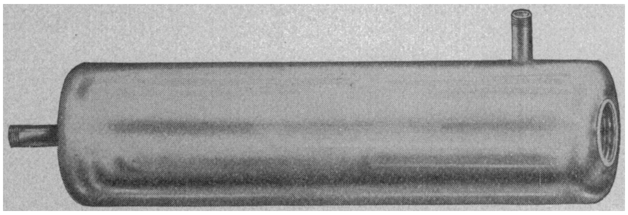

Fig. 1.—(One-third size.) Represents a metal heating chamber, block tin lined, with opening for electric heating unit and rubber tube connections for intake and outlet of saline solution.

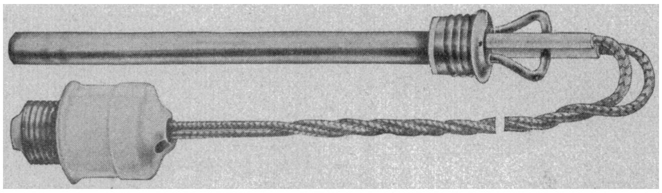

Fig. 2.—(One-third size.) Electric heating unit with socket connection and ten feet of cord. This unit can be used with either alternating or direct current 105 to 128 volts. See Fig. 7.

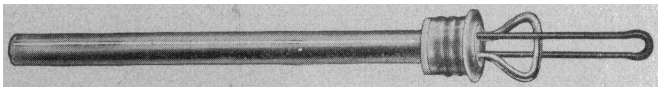

Fig. 3.—(One-third size.) Heat unit for alcohol or Bunsen burner flame with regulating piston. For use where electric current is not available. See Fig. 8.

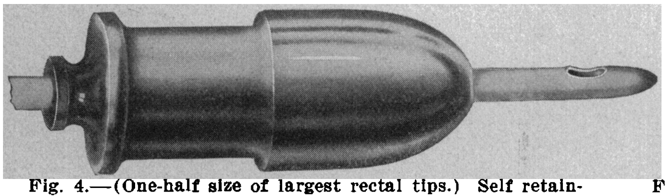

Fig. 4.—(One-half size of largest rectal tips.) Self retaining rectal tips on catheter showing how adjustment can be accomplished by merely drawing catheter through to desired length.

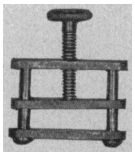

Fig. 5. — (One-half size.) Pinch cock used entirely to close flow or for drop method.

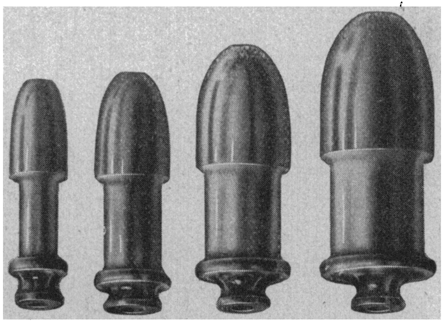

Fig. 6.—(One-third size.) Self-retaining rectal tips made in four sizes of hard rubber with opening through center to admit a soft rubber rectal catheter American size, No. 15. See Fig. 4.

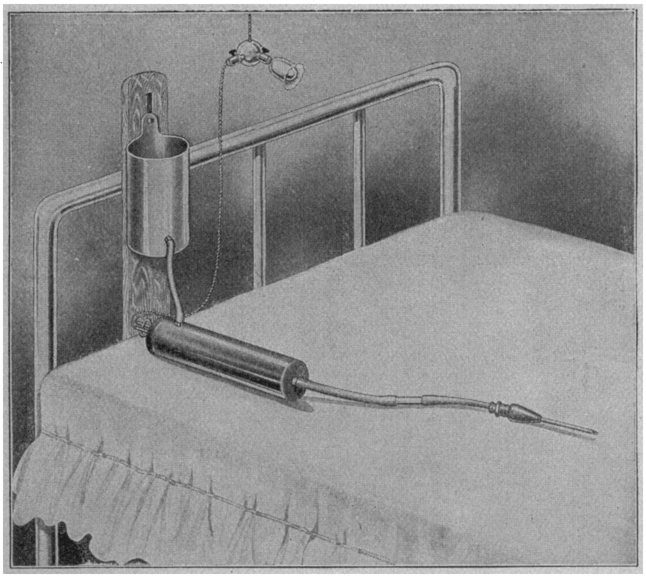

Fig. 7.—Electric heater in operation showing it properly connected. A short glass tube connects catheter to rubber tubing.

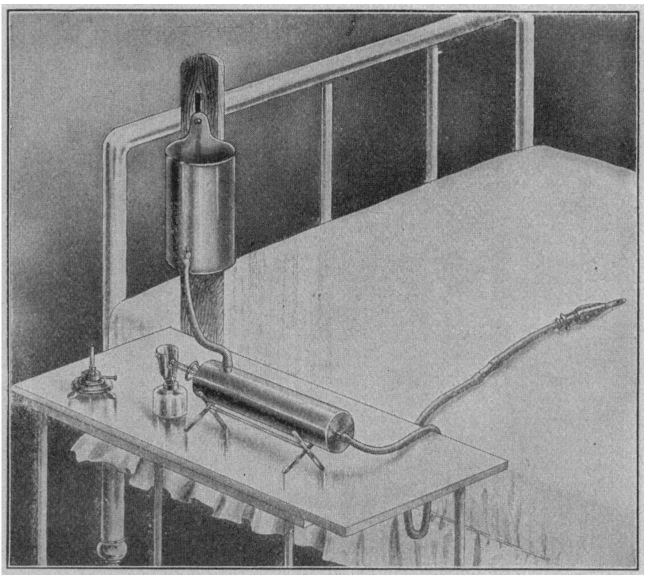

Fig. 8.—Alcohol or gas heater in operation, showing it properly connected. A short glass tube connects catheter to rubber tubing.

tion in Kelly and Noble's "Gynecology and Abdominal Surgery," volume II, page 415. The bag or can is suspended from the foot of the bed so that its base is six inches above the level of the patient's buttocks. Once the irrigating apparatus is thus placed, it need not be disturbed for several days, unless to increase or diminish the speed of influx. The solution, consisting of a dram each of sodium chlorid and calcium chlorid to the pint of water, is now placed in the reservoir and kept at a temperature of 100 F. by applied heat in the form of hot-water bags, thermolytes or an incasing can of hot water, or by means of the apparatus described further on. The quantity administered depends on the severity of the case, the age of the patient and other considerations that will suggest themselves in the particular instance. The average, however, is eighteen pints in twenty-four hours; that is, a pint and a half every two hours. A quantity less than eight pints is, I believe, of little value. In a child of 11 as much as thirty pints have been administered in twenty-four hours without escape of fluid. The control of the flow should never be governed by knots in the tube, forceps clamped thereon, or small openings in the tip. The larger tube with many openings is used to provide for a sudden return of the flow into the can when the patient strains, wishes to expel fluid or void gas. If there be constrictions in the tube the fluid can not return into the can, but passes into the bed linen.

A more elaborate form of apparatus is that devised by Dr. O. H. Elbrecht, of St. Louis, and manufactured by the Meier Dental Manufacturing Company of that city, and illustrated herein. Dr. Elbrecht describes his apparatus as follows:

> The proctoclysis heating apparatus illustrated was designed to meet a demand for an outfit that would heat saline and maintain it at a uniform temperature for proctoclysis. Many varieties of heating devices have been employed, but all are found wanting in that they fail to maintain a uniform temperature when heat is applied to the saline reservoir, for the saline is ever changing in amount as a result of absorption, and thus brings about ever changing temperatures. Then also there is a great loss of heat in the rubber tubing from the reservoir to the rectum. With most of the apparatus now in use the saline is cold by the time it enters the rectum. This makes the rectum irritable and less tolerant, and thus retards absorption; while if the saline is warm when discharged into the rectum it insures the greatest possible absorption and least discomfort.
>
> The rectal tips shown in Figure 6 are made in four sizes, are self-retaining and admit a rectal tube through their lumen, as shown in Figure 4 (largest size used here for sake of plain illustration), and thus the saline can be discharged several inches into the rectum. They prevent leakage and the larger sizes are used for patients with relaxed sphincters, as in advanced peritonitis, shock, severe toxemias, etc.
>
> Figure 5 shows a screw clamp which is placed on the rubber tubing behind glass tube connection to catheter, which permits easy disconnection for use of bed-pan and allows the rest of the apparatus to remain intact. It may be applied to any part of the tubing without disturbing the apparatus while in use, and is left wide open when the gravity method is used.
>
> The electric heating arrangement is the cleanest and the most satisfactory, and it requires little or no attention when once started and can be placed in the bed with the patient. The same results can be obtained, however, by using a Bunsen burner or alcohol lamp in connection with the heating chamber, which is then placed on a small table alongside of the bed. (Fig. 8.) This permits the outfit to be used where electricity is not available, as in rural districts or in homes where only gas is at hand. All the parts, including saline tablets, are assembled in a box, which makes the apparatus portable and ready for immediate use in emergencies.

Dr. Elbrecht's apparatus works admirably in adults. It can be used with the angled vaginal douche tip as illustrated in my article just as well as with the bulb tip that is inserted into the rectum, and I would say it works better than the bulb, as the latter occasionally produces irritation and the patient insists on having it removed. For the maintenance of uniform heat the Elbrecht apparatus fulfills all the indications. It does not, however, allow the fluid to flow back when the patient strains. The holder of the Elbrecht apparatus may be inserted into the ordinary fountain syringe can containing hot water, and that keeps it at a uniform temperature and moderately warm for a long period of time.

The proctoclysis is usually continued for three days; rarely as long as five or six. It is best administered in the Fowler position. The best plan is to place a pint and a half of the saline solution in the container every two hours. The container should be elevated sufficiently to allow this all to flow into the rectum in forty to sixty minutes, giving the rectum a period of rest from the influx of fresh fluid for approximately an hour before it flows again.

It is surprising what a large quantity of fluid is taken up by the rectum and how little irritation and disturbance it produces, even in days of continuous use. If the patient is getting too much solution, after the third or fourth day he will show a slight edema of the ankles, hands and even of the face. Then it should be discontinued until his circulatory equilibrium is restored, when the treatment may be repeated if indicated.

In the toxemias of typhoid, scarlatina, and in the early days of pneumonia, before the heart has suffered from the intoxication, it appears to afford great relief. In the later stages of pneumonia it should be used with great caution.

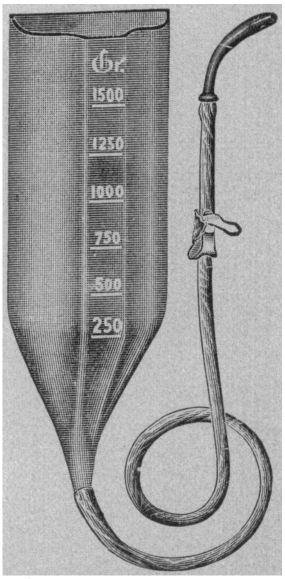

Fig. 9.—Proctoclysis apparatus consisting of fountain syringe, large rubber tube and vaginal hard rubber or glass tip.

I have been surprised in visiting hospitals to have my attention called to the proctoclysis treatment, in cases in which the patients were given six or eight ounces of fluid every two or three hours, or in which the fountain syringe was placed four to six feet above the level of the bed and the entire hydrostatic pressure thrown on the rectum, and the flow limited by forceps or other combination attached to the tube. In many of these hospitals the superintendent of nurses, the doctors and the nurses themselves complained of the fact that the patients did not retain the fluid. This was undoubtedly true, but the failure to retain it was because it was not properly administered. It should never have a headway of more than fifteen inches hydrostatic pressure, and it gives the best and most uniform results at four to seven inches.

The illustrations show the angle at which the hard rubber tube should be flexed to prevent its pressure against the posterior wall of the rectum when the patient is placed in the Fowler position. A straight hard-rubber tube often causes considerable irritation, while the flexed tube causes no inconvenience. The rubber tube should always be strapped to the thigh. This insures its retention and prevents traction or pressure on the sphincter. Frequent change of the tube annoys the patient greatly and soon produces an irritability.

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CONTINUOUS ENTEROCLYSIS

THE TWO-FUNNEL VISIBLE-DROP METHOD

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There have been many attempts to simplify the method of giving a continuous saline solution into the rectum, i. e., the Murphy treatment. Too much seems to depend on the close attention and frequent adjustment by the attendant. In many hospitals the original gravity plan, which is advisable as the simplest and most efficient method, has been discarded; "we can not make it work" being the usual excuse. All the substitutes that I have seen have been poor ones and unreliable makeshifts open to strong objections.

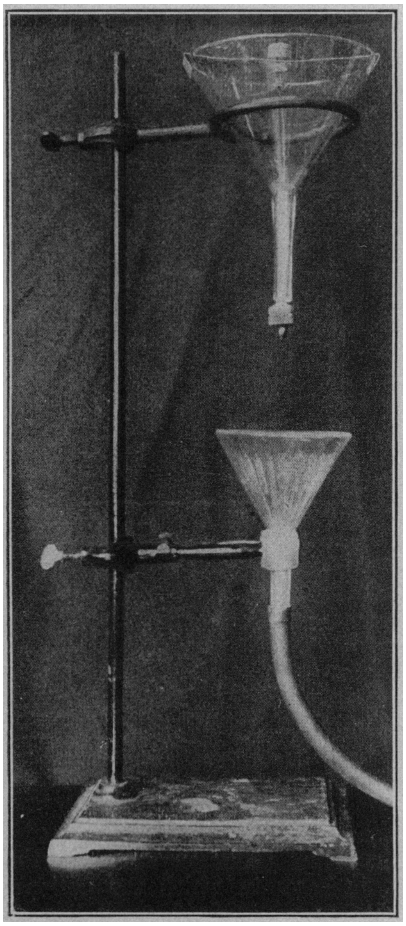

Fig. 1.—A laboratory stand with one large and one small iron ring; two glass funnels, the upper one large and the lower one small. A rubber tube attached to the lower funnel conveys the fluid to the rectum. The upper funnel is provided with a loosely fitting rubber plug at the tip and with a broad metal strip which is fastened across the top of the funnel. This metal strip has an opening at the middle and at this point the nut of a screw is soldered in place. This screw raises or lowers the rubber stopper by means of a wire or thin rod which connects the two.

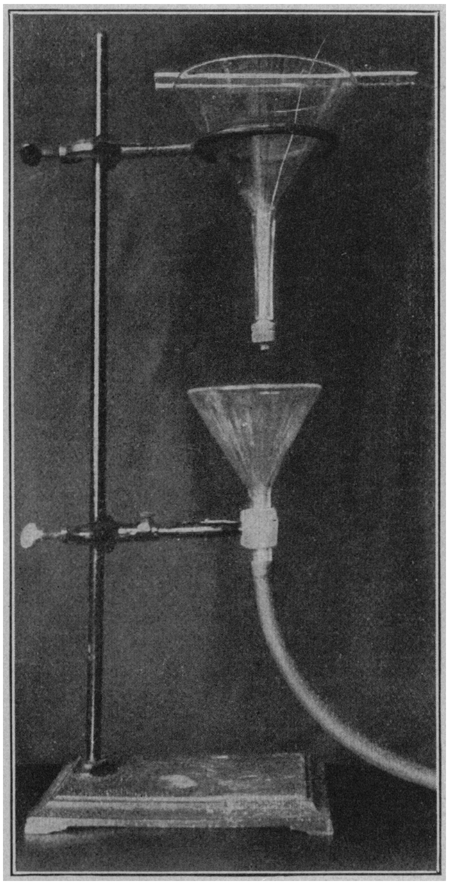

Fig. 2.—This is a home-made apparatus which can be easily devised. The upper funnel is provided with a rubber plug (the plunger of an antitoxin syringe has been used) to which a non-corroding wire is attached by means of a small shot. Another small shot is fastened on the other end of the wire, and this is held in the groove of a small piece of wooden board. Pushing the board toward the center of the funnel lengthens the wire and loosens the rubber plug while pulling the little board from the center of the funnel shortens the wire and tightens the rubber stopper. An incandescent light in the lower funnel will help to keep the saline solution from cooling.

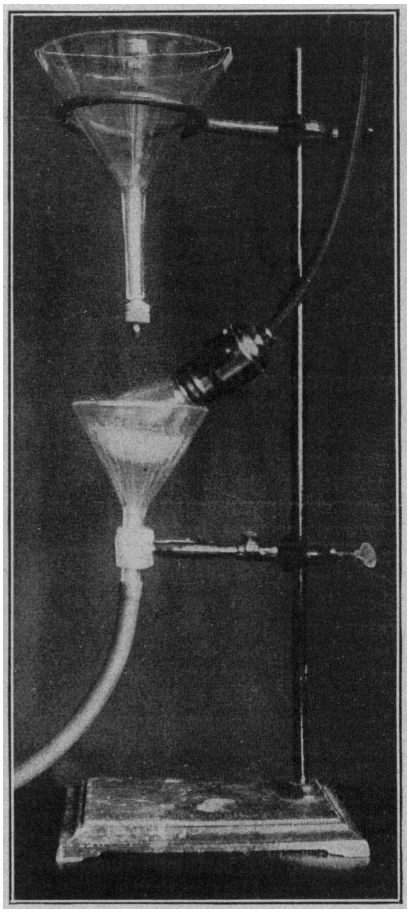

Fig. 3.—A porcelain evaporating-dish is placed in the lower funnel, and an electric bulb rests in this little cup. The upper funnel contains cool saline solution. As the water falls from the funnel above to the funnel below it strikes the electric bulb, flows down its sides and collects in the evaporating dish. It is warmed and gradually displaced by the additional solution which drops from above. The water does not become too warm unless the drops are made to fall at very long intervals. The heat must be turned off when the upper funnel is empty or the flow from it has been checked.

The simple device which is here offered meets every requirement necessary for the successful working of the method and possesses decided advantages.

1. The apparatus is elevated on the table at the side of the bed and need not be disturbed.
2. It is an open method, and any difficulty is easily located.
3. The drops may be fed as fast or as slow as desirable, by means of an adjustment.
4. The drops are visible.
5. The rubber tube is not compressed and distention of the bowel is avoided; any return flow from the rectum is facilitated.
6. Return flow from the rectum is seen and the drops may be fed slower or stopped entirely until the rectum has recovered itself.

I have attempted to solve the problem of maintain-